



# COMPARATIVE STUDY OF JUMPING STRENGTH ABILITY OF LEGS BETWEEN UNDER-25 (INTER-COLLEGE) VOLLEYBALL AND BASKETBALL PLAYERS

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## ABSTRACT

The purpose of the study was to compare the jumping strength ability of legs between under-25 volleyball and basketball players. For this study, a sample of one hundred ( $N=100$ ) players i.e. Volleyball ( $N_v=50$ ) and Basketball ( $N_b=50$ ), was selected from different colleges affiliated to Panjab University, Chandigarh, India. All the boys were assessed for height, weight and jumping strength ability of legs. The height of the subjects was measured with anthropometric rod to the nearest 0.5 cm. The weight of subjects was measured by using portable weighing machine to the nearest 0.5 kg. The jumping strength ability of the legs was measured by vertical jump test. The independent samples t-test was used to assess the differences between volleyball and basketball players. The results of present study clearly indicated that basketball players had significantly greater power ( $p<0.05$ ) than volleyball players.

**KEYWORDS:** Jumping strength ability, Basketball, Volleyball, Players.

## INTRODUCTION:

Volleyball and basketball are among the world's popular sports, played practically in every nation at varying levels of proficiency (Gaurav et al., 2010). Successful participation in these sports requires from each player a high level of jumping strength ability and suitable body composition and anthropometric characteristics. The ball games require repeated maximum exertion such as dashing and jumping (Tsunawake, 2003). Volleyball and Basketball players are on average taller than the players of other games (Rahmawati et al., 2007). Basketball and volleyball require handling the ball above the head; therefore, taller players are suitable for these sports (Kansal et al., 1986). Higher body mass however, is a hurdle for volleyball players in achieving good jumping height (Bandyopadhyay, 2007). Volleyball requires a lot of jumping. The players jump to spike and block in the game, so jumping is a very important physical performance (Zhong & Huang, 1989). The jumping strength ability of legs in basketball is required for jumps, sudden changes in the direction of movement, slowing down, sudden stopping and in passing the ball to each other (Khlifa et al., 2010). Volleyball players required maximum jumping ability which influences the performance of the game (Chowdhary et al., 2015). One of the main physical trait required in volleyball is lower limb muscle power, expressed by the numerous jumps performed during the games, which are important both for the attacking and blocking actions (Sheppard et al., 2007; 2008; 2009). An understanding of the jumping strength ability performance of under-25 volleyball and basketball players may be important for talent identification, training programme and technical preparation for specific playing positions in the team. Therefore, the purpose of the study was to compare the jumping strength ability of legs between under-25 volleyball and basketball players.

## MATERIALS AND METHODS:

### Subjects:

A sample of one hundred ( $N=100$ ) players i.e. Volleyball ( $N_v=50$ ) and Basketball ( $N_b=50$ ), was selected from different colleges affiliated to Panjab University, Chandigarh, India. The purposive sampling method was used to select the subjects for the present study. The age of each subject was calculated from the date of birth as recorded in his college.

### Methods:

The study was conducted on jumping strength ability of legs between under-25 (Inter-College) volleyball and basketball players. The height of subjects was measured by using the standard anthropometric rod to the nearest 0.5 cm. Weight was measured with portable weighing machine to the nearest 0.5 kg. The jumping strength ability of legs was measured by vertical jump test (Fleishman, 1964).

### Statistical analyses:

Values are presented as mean values and SD. Independent samples tests were used to test if population means estimated by two independent samples differed significantly. Data was analyzed using SPSS Version 16.0 (Statistical Package for the Social Sciences, version 16.0, SPSS Inc, Chicago, IL, USA).

## RESULTS:

**Table 1: Demographic Characteristics of under-25 (Inter-College) Volleyball and Basketball players.**

Students Group	Age (yrs)		Height (cm)		Weight (Kg)	
	Mean	SD	Mean	SD	Mean	SD
Volleyball Players	22.34	1.10	178.40	1.70	63.25	1.63
Basketball Players	22.34	1.10	179.64	1.56	61.87	1.31

Table-1: Shows the demographic characteristics of under-25 volleyball and basketball players. The mean age of both the groups was 22.34 years. The mean height of volleyball players was 178.40 cm and basketball players were 179.64 cm. The mean weight of volleyball players was 63.25 kg and basketball players were 61.87 kg respectively.

**Table 2: Jumping strength ability of legs between under-25 Volleyball and Basketball players.**

Variable	Volleyball Players (NV = 50)		Basketball Players (NB = 50)		Mean Difference	SEDM	t-value
	Mean	SD	Mean	SD			
Jumping strength ability (cm)	27.58	1.06	31.49	0.82	3.91	0.19	20.58*

\*Significant at 0.05 level

Table 2 presents the jumping strength ability of legs under-25 volleyball and basketball players. The basketball players were found to have significantly better jumping strength ability of legs ( $p<0.05$ ) as compared to volleyball players.

## DISCUSSION:

In the present study jumping strength ability of legs between under-25 volleyball and basketball players have been evaluated and compared with each other. This study indicates the existence of jumping strength ability of legs difference between volleyball and basketball players. In the present study, basketball players were found to have significantly better jumping strength ability of legs as compared to volleyball players, the findings of the current study, supported by many previous studies conducted by (Latin et al., 1994; Hoffman et al., 1996; Ziv & Lidor, 2009) authors stated that the jumping strength ability is the quality of basketball players.

## CONCLUSION:

Significant differences were found between under-25 volleyball and basketball players with regard to jumping strength ability of legs. The basketball players had high jumping strength ability of legs as compared to volleyball players. From the study, it might be concluded that basketball players showed greater power to their counterparts in spite of the fact that regular participation in basketball activity may improve the jumping strength ability of legs.

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